

## **Pakistan Mathematical Society Newsletter**

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- Editorial
- 6<sup>th</sup> IPMC 2005
- Interview of Professor B.K.Dass
- Interview of Professor M.Henriksen
- History of Mathematical Societies                      Qaiser Mushtaq
- Professor K.Galzek Passes Away
- Should Mathematics be Compulsory?                      Qaiser Mushtaq
- Conferences/Events

## **EDITORIAL**

AN edifice representing education system admits a natural dichotomy into basic education and higher education. Indubitably the component comprising basic education constitutes the foundation of the system while the part representing higher education could be regarded as its ceiling. If the foundational part is not free from snags, then the structure representing the system intrinsically crumbles, however, well-designed and appropriately cemented its ceiling may be. A lopsided approach to academics gives rise to numerous lacunae which may make the total investment of both time and money an exercise in futility.

To rejuvenate advanced studies and research activity in Pakistan, the Higher Education Commission (HEC) has initiated a two-pronged policy. On the one hand, HEC has launched the Foreign Faculty Hiring (F.F.H.) Programme, which allures Pakistani expatriate experts as well as foreign experts to join Pakistani universities. Limiting my considerations exclusively to mathematics and allied sciences, I venture to assert that the F.F.H. Programme has turned out to be an utter failure - a fact that can be verified by a visitation to those institutions at which the imported experts are working. Presumably the selection procedure for experts is tinged by haphazardness and consequently it is not unimpeachable.

“The worst thing that can happen to higher education is production of low quality Ph.D.’s as these people will later become teachers and rot the entire system. So HEC will not tolerate violations of quality criteria”, said the chairman HEC at the inaugural session of the “National Forum on Higher Education” held from 21-22 September 2005. Unfortunately the “worst” has already started eroding the very foundation of this Programme because most of the Ph.D. awardees have either not been able to find suitable supervisors or have joined the bandwagon of those who have been guaranteed the Ph.D. degree without a slight variation in their knowledge. Some appropriate remedial measures should be promptly adopted to check this unhealthy trend if the Ph.D. degree Programme launched by HEC is to succeed in embracing its lofty objectives.

It is suggested that the F.F.H. Programme may be substituted by an academically sound, well-thought out and cost-effective, financially viable Programme in consonance with the dictates of national requirements after envisioning its repercussions on the already employed local community at our universities. Further, the scholarships and grants for advanced studies, especially for Ph.D., be placed at the disposal of the universities because they are the best judges of the worth and work of their faculty. Undoubtedly the universities are not only the producers of Ph.D. scholars but also they are the major end-users of Ph.D.’s and hence their maximum involvement in this Programme shall go a long way in enhancing its efficaciousness.

## **6<sup>th</sup> INTERNATIONAL PURE MATHEMATICS CONFERENCE 2005**

PAKISTAN Mathematical Society has committed itself to organize international conferences regularly every year. It has thus organized the series of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> Pure Mathematics Conferences in 2000, 2001, 2002, 2003 and 2004 respectively. The 6<sup>th</sup> International Pure Mathematics Conference 2005 was a sequel to these conferences. It was a thematic conference and its theme was Algebra, Analysis, Geometry and Mechanics.

The 6<sup>th</sup> International Pure Mathematics Conference 2005 was held from 20<sup>th</sup> to 22<sup>nd</sup> August 2005 at the Best Western Hotel. Twenty invited speakers, namely Professor Melvin Henriksen (USA), Professor Robert Redfield (USA), Professor S.T. Rizvi (USA), Dr. Mohammad Saleem (USA), Professor Yuqun Chen (China), Professor Nanqing Ding (China), Associate Professor M. Diker (Turkey), Professor Alberto Facchini (Italy), Professor Mikio Kano (Japan), Dr. Ali Reza Moghaddamfar (Iran), Professor B. K. Dass (India), Professor P. K. Jain (India), Dr. S.M. Khairnar (India), Professor Vilas S. Kharat (India), Professor I.B.S. Passi (India), Professor Dipendra Prasad (India), Professor Shashirekha B. Rai (India), Professor Anant Wasudeo Vyawahare (India), Professor Richard Wiegandt (Hungary), and Professor Narain Datt Gupta FRSC (Canada) attended the conference. There were nine key note speakers each of forty minutes and fifty short communications each of 20 minutes. Ninety six participants registered for the conference. The lecture topics covered the main branches of both pure and applied mathematics.

A simple one-hour inaugural session was arranged on the first day of the 6<sup>th</sup> International Pure Mathematics Conference. Some 160 invited guests attended the inaugural session. Professor Dr Atta ur Rahaman, Chairman, Higher Education Commission, was the chief guest at the inaugural session that was kept very simple and sombre. Professor B.A.Saleemi, President, Pakistan Mathematical Society, the Convener, Professor Dr Qaiser Mushtaq, and the Chief Guest delivered straightforward and short speeches.

The conference was unique in the sense that so many eminent mathematicians from nine countries, including the US, China, India, Japan, Canada, Italy, Iran, and Turkey attended the conference. It was an outcome of the collective efforts of the following committees:

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The proceedings of the conference spread over three days. The first day there were the inaugural session, Registration, three key note lectures, and two parallel sessions each comprising five lectures. The second day there were three keynote lectures and two parallel sessions each comprising eleven lectures. A Conference Dinner, which was sponsored by the Riphah International University, Islamabad, also took place on the second day. The Vice Chancellor, Professor Dr Anis Ahmad, personally welcomed the guests. On the third day, there were three keynote lectures and two parallel sessions each comprising nine lectures. Every day after the lecture sessions, the guests were brought out on sight seeing tours to Faisal Mosque, Quaid-i-Azam University, Shaker Parian, Constitution Avenue, Folk Heritage Museum, and Taxila. Participants from Pakistan were provided free accommodation at the Dreamland Hotel and the foreign invited speakers were put up at the Best Western Hotel. The speakers were served dinners at Holiday Inn, Best Western, and Wang Fu.

The last session was devoted to the discussion on the state of mathematics in Pakistan. Professor Y.Q.Chen (PRC), Professor M.Diker (Turkey), Professor Q.Ding (PRC), Professor Alberto Facchini (Italy), Professor Henrikson (USA), Professor M.Kano (Japan), Dr A.R.Moghaddamfar (Iran), Professor I.B.Passi (India) appreciated the quality of the papers read at the conference. They expressed their thanks also for the warm hospitality. They were of the view that this useful activity has introduced Pakistan very well to the global mathematical community. Further, it was unanimously resolved that there is a dire need to uplift mathematics in Pakistan. The research, teaching, and curriculum of mathematics need to be improved and the government needs to be urged to take serious note of the state of mathematics.

The conference published Poster, Website, Invitation Cards, Certificates, Booklet containing Programme, Abstracts, List of the Participants, and Mists of Members of the Committees. The participants were given soft brief cases containing some stationery and the invited speakers were given souvenirs as well.

The conference was given international publicity. A colourful poster was sent to the Vice Chancellors and Registrars of all the universities in Pakistan. Invitation cards were also sent to the members of the Pakistan Mathematical Society and prominent scientists for participation. The conference was advertised through its Website <http://www.pmc.org.pk> HEC published information of the conference in its newsletter and displayed in its website the conference poster along with web connection. The Homepage of Quaid-i-Azam University, Islamabad, advertised the conference and displayed web connection as well. The American Mathematical Society and the London Mathematical Society published information about the conference in its *Notices*, and *The Newsletter*.

The conference was given due coverage in the media as well. Several news items appeared in the national newspapers, namely Dawn (21<sup>st</sup> August 2005), The News (21<sup>st</sup> August 2005), Pakistan Observer (21<sup>st</sup> August 2005). Pakistan Television also covered the event and it was shown on PTV *Khabarnama*.

## **MATHEMATICAL SOCIETIES**

### **Professor Dr Qaiser Mushtaq**

INCREASE in scientific and mathematical activities led to the formation of groups of persons who met, sometimes regularly, for discussions and exchange of ideas. Some of these groups later emerged as academies, schools, or societies. The first of these well known perhaps were, Plato's Academy in Athens, or the school of Euclid in Alaxandria, or the House of Wisdom (*Bait ul Hikma*) in Baghdad, or Society of Brother's of Banu Musa in Baghdad.

It is difficult to say where and when the first mathematical society in the modern sense was founded, but the oldest one that still exists is the Mathematische Gesellschaft in Hamburg. It was founded in 1690 as the Kungstrechnungsliebende Societat. Another early one is the Spatalfields Mathematical Society, which lasted from 1717 to 1846. But these were not societies of national stature. The first society of national stature is the Wiksunding Genootschap, which was founded in Amsterdam in 1778. Later the Moscow Mathematical Society was founded in 1864, the London Mathematical Society in 1865, the Societe Mathematique de France in 1872, the Mathematical Society of Japan in 1877, the Edinburgh Mathematical Society in 1883, the Circolo Matematico di Palermo in 1884, the New York Mathematical Society, which was later renamed as the American Mathematical Society, in 1888 and the Deutsche Mathematiker-Vereinigung in 1890.

The Late Dr Raziuddin Siddiqui founded the first mathematical society in Pakistan in 1952 by the name of All Pakistan Mathematics Association. He remained its President from 1952 to 1972. After his 'retirement' from the Association, tussle between mathematicians from Karachi and Lahore split the Society into two factions. The late Hakim Mohammad Said, as Chairman of the Hamdrad Foundation, financed the Karachi faction. This faction in Karachi convened the first International Conference of Mathematical Sciences in 1975. It was at this conference's concluding session that due to the personal efforts of the late Dr Raziuddin Siddiqui that the two factions merged together to reform the old All Pakistan Mathematics Association. It was then decided to reformulate its constitution to accommodate various chapters at the provincial capitals, namely, Karachi, Quetta, Lahore and Peshawar. The Society remained inactive for quite some time. Later Professor Dr Q.K.Ghori, tried to bring some life into it in 1983 when he became its President.

## **PROFESSOR KAZIMIERZ GLAZEK PASSES AWAY**

AN outstanding mathematician, Professor Kazimierz Glazek is well known to many Pakistani mathematicians and students of mathematics. He visited Pakistan in July 2003 and stayed here for a few months as a guest of the COMSAT'S Institute of Information Technology. He had also visited Pakistan before for mountaineering.

He passed away on 26<sup>th</sup> September 2005. He was born in 1939 and obtained PhD degree from Wroclaw University in 1969 under the supervision of Professor Edward Marczewski.

Professor Glazek has written about 60 research papers and made valuable contributions to universal algebra and some other branches of general algebra. His main area is universal (general) algebra and semirings.

He attending many conferences in different parts of world. His lectures at these conferences exposed recent results in various parts of algebra and raised interesting problems whose solution would be important for a progress in algebra.

Professor Glazek was a very friendly and kind person. He was the main editor of the journal "Discussions Math. General algebra and applications." He was a very good chess player. Many times he was a master (the first place) of Wroclaw University. On the other hand, he was also a famous alpinist. He blazed a new trail, e.g., in Pamiro-Altai (Russia), Karakorum, K-2, and Trollveggen (in Norway). He was a member the first Polish group that won the Broad Peak Medal (8016m) in 1975.

## **INTERVIEW OF PROFESSOR MELVIN HENRIKSEN**

A photograph will be inserted later.

PROFESSOR Melvin Henriksen was born on 23 February 1927 in New York City. He obtained his degree in Bachelor of Science from City College of New York in 1948, degree of Master of Science from University of Wisconsin in 1949, and degree of Doctor of Philosophy (Mathematics) from University of Wisconsin in 1951.

He was a member of the Institute for Advanced Study from 1956 to 1957 and then from 1963-1964. He has been Professor Emeritus at Harvey Mudd College since 1997.

His research work is mainly on Ordered Algebraic Systems and General Topology. He has supervised 11 Ph.D. Dissertations at Purdue University, Case Western Reserve University, and Claremont Graduate School. He is member of the American Mathematical Society, Mathematical Association of America, and National Association of Mathematicians, Associate Editor of the American Mathematical Monthly from 1988 to 1991 and Associate Editor of Algebra Universalis.

He wrote a book with M. Lees on Single Variable Calculus with an Introduction to Numerical Methods in 1970. He is author of about 88 research papers published in outstanding journals such as Pacific J. Math, Proc. Amer. Math. Soc, Trans. Amer. Math. Soc., Annals of Math., Ill. J. Math., Duke Math. J., Michigan Math., J. Math. Zeit. Arch. Math., Acta Arithmetica, Bull. Amer. Math. Soc., Topology and Appl., Canad. J. Math., Math. Proc. Camb. Phil. Soc., Annals of New York Acad. Sci., and Houston J. Math.

**Question** Keeping in view the quality of research papers presented by Pakistani mathematicians in 6 IPMC-2005, how do you rank Pakistani researchers internationally?

**Answer** Very few Pakistani mathematicians presented papers at IPMC-2005 in my area of expertise (ordered algebraic systems) or in familiar publications, so I cannot rank them in any intelligent way.

**Question** How far can an International Conference on Mathematics help to mobilize the local community in doing creative work in mathematics?

**Answer** Not very far unless the conference lasts much longer and more is done to encourage further contact between Pakistani mathematicians and visitors. I left Pakistan almost as ignorant of mathematical activities there as before I came.

**Question** Higher Education Commission of Pakistan has adopted a multidimensional approach to promote research activity in our faculty. One of the aspects of their policy is to hire foreign faculty members to work in Pakistani universities on a short-term basis. Do you feel that this approach for developing research is more helpful than sending students to other countries for their advanced studies?

**Answer** No. In my opinion, you should continue to send Pakistani students abroad and hire foreign faculty members to work in Pakistani universities to develop a cadre abroad familiar with how Pakistani students are educated, what is needed to improve library facilities and to maintain continued contact.

**Question** What are the dominant reasons for making mathematics a compulsory component of school syllabi universally?

**Answer** In a world in which the production and distribution of everything we need depends on acquiring technical skills all of which rest on a mathematical foundation, it should be obvious that learning mathematics is as important as learning how to read and write.

**Question** It is a matter of common experience that mathematics is not a very popular subject in the academic institutions of third world countries. Could you suggest some remedial measures to curb this tendency?

**Answer** Even in a rich country like the United States, those who enjoy acquiring mathematical skills are often ridiculed. Indeed, most of the teaching of mathematics in the lower grades is done by people who fear and dislike mathematics. Until this ridicule is changed to praise and admiration, nothing will change. Parents must tell their children how important it is to learn mathematics instead of bragging that they disliked it. Political leaders must stress its importance and how enjoyable it can be.

## **SHOULD MATHEMATICS BE COMPULSORY?**

**Professor Dr Qaiser Mushtaq**

ONE can argue that should mathematics be a compulsory school subject beyond the age of 13 because most people rarely need more mathematics than basic arithmetic, and those who are not interested should not be forced to take the subject further. One can therefore save time, which could be spent on sociology lessons, where students can learn to make moral, political and personal judgments about what is important.

The argument goes like this: when one needs mathematical expertise one does not possess, one can safely consult an expert; but to put moral judgments in the hands of anyone else, however expert, would be an abdication of responsibility.

This is an interesting argument, because it does not seem to stop at mathematics. One could consult a historian, a geographer, or a physicist, for information about their subjects. Only in the field of sociology are one's own decisions privileged above the others.

But, for instance, a historian might object to this sort of argument. History is not a matter of battles, names and dates, which can be looked up when they are needed. That is how it used to be taught, and generations of students were bored stiff. But real history, though dates and names may be its raw material, is about evaluating evidence, looking for causes, analyzing motives - all essential skills in that process of learning to make decisions for one.

The defense of mathematics is structurally similar to that of history. We are sensitive to the similarity because pattern and structure are what our subject is all about, and that is the point. Mathematics is not a matter of remembering formulae to do long multiplication, solve quadratic equations and find areas of triangles. Those may be among its raw materials, but mathematics is about identifying patterns, recognizing structures, investigating the logical consequences of hypotheses. These skills are necessary before anything else when making a decision, passing a judgment, using a computer or reading the news.

One agrees that there is not enough imagination in the school mathematics syllabus or even beyond this level. Every day, many students sit in mathematics lectures which are dull, or which they are not properly equipped to understand. Not unnaturally, they are

bored, and the result is that not only do they learn nothing, but also they form a negative impression of mathematics as being nothing but a lot of useless formulae.

We need more support for mathematics teachers, smaller classes, more of the teachers themselves. We need forums for teachers to exchange ideas about methods and materials. And we need a wider public understanding of mathematics and its applications.

## **CONFERENCES AND EVENTS**

### **LUMS International Conference on Mathematics 2005**

Lahore University of Management and Sciences is organizing the first time international conference on Mathematics entitled LUMS International Conference on Mathematics 2005, which will be held from 27<sup>th</sup> to 30<sup>th</sup> November 2005 in Lahore.

### **Arbeitstagung Allgemeine Algebra 71<sup>st</sup>**

Arbeitstagung Allgemeine Algebra 71<sup>st</sup> Workshop on General Algebra (AAA71) together with 21<sup>st</sup> Conference for Young Algebraists (CYA21) will be held at the Mathematical Research and Conference Centre (a part of Banach Centre) in Bedlewo (nearly to Poznan, Poland) from 9<sup>th</sup> to 12<sup>th</sup> February 2006. They will be co-organized by the University of Zielona Gora (Poland) and Potsdam University (Germany).

### **International Conference on Mathematics and its Applications**

The International Conference on Mathematics and its Applications will be organized by COMSATS Institute of Information Technology in Lahore from 20<sup>th</sup> to 22<sup>nd</sup> January 2006.